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ABSTRACT

To meet accountability challenges from a customer-satisfaction perspective, an urban institution of higher education has developed an integrated approach to studying the freshman year experience in order to develop comprehensive outcomes measures for assessing freshman success. Multiple sources of data (freshman satisfaction survey data, enrollment data, and academic performance data) are integrated into a database which provides the institution with a comprehensive set of outcome indicators and a model of the freshman experience. The integrated dataset is used to develop models of freshman retention. In order to focus more clearly on customer satisfaction, models of student satisfaction were developed to determine critical components in freshman satisfaction. Implications for institutional research include: (1) researchers can use integrated freshman databases to provide more comprehensive outcomes assessment measures; (2) integrated data providing a comprehensive picture of the freshman experience provides decision makers with more useful information for developing successful institutional strategies; (3) researchers can develop longitudinal databases and institution-specific models of the freshman experience; and (4) this integrated analysis uses a total quality approach to understanding the freshman experience. (Author/JB)

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Contributed Paper

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From Retention to Satisfaction: New Outcomes for Assessing the Freshman Experience

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Jean Endo
Editor
Forum Publications

From Retention to Satisfaction: New Outcomes for Assessing the Freshman Year Experience

Abstract

To meet higher education's challenge of accountability from a customer-satisfaction perspective, one urban institution has developed an integrated approach to studying the freshman year experience in order to develop comprehensive outcome measures for assessing freshman success. Multiple sources of data (freshman satisfaction survey data, enrollment data and academic performance data), are integrated into a database which provides the institution with a comprehensive set of outcome indicators and a model of the freshman experience. This institution used the integrated dataset to develop models of freshmen retention. In order to focus more clearly on customer satisfaction, models of student satisfaction were developed to determine critical components in freshman satisfaction.

From Retention to Satisfaction: New Outcomes for Assessing the Freshman Year Experience

Introduction

To meet higher education's challenge of accountability from a customer-satisfaction perspective, one urban institution has developed an integrated approach to studying the freshman year experience in order to develop comprehensive outcome measures for assessing freshman success. Multiple sources of data (freshman satisfaction survey data, enrollment data and academic performance data), are integrated into a database which provides the institution with a comprehensive set of outcome indicators and a model of the freshman experience. This institution used the integrated dataset to develop models of freshmen retention. In order to focus more clearly on customer satisfaction, models of student satisfaction were developed to determine critical components in freshman satisfaction.

Conceptual Framework

Institutions of higher education nationwide have been challenged by their various constituents to demonstrate student success. Traditionally, these measures of success have included such indicators as freshman retention rates. However, because of the wave of total quality management influencing higher education (Sherr & Lozier, 1991; Coate, 1991), these traditional measures of success fall short. They do not address the issue of improving services to all students, including those who are retained. The question we should be asking ourselves is not how many freshmen re-enroll at the institution for a second year, but with what type of experience do we want to provide freshmen and are we meeting their expectations (Levine, 1988). We should focus on the entire freshman year experience to dem-

onstrate the success of higher education.

To meet these challenges, the Office of Institutional Planning and Research at DePaul University, an urban, comprehensive institution, uses an integrated approach to analyze the freshman experience by linking multiple datasets to create a comprehensive freshman database. Using this integrated database, the institution can develop comprehensive outcome indicators to demonstrate success and can develop institution-specific models to enhance the freshman experience, including models of retention and satisfaction.

Methodology

The Office of Institutional Planning and Research (OIPR) developed an integrated freshman database by linking student survey data to other institutional data, including freshman Cooperative Institutional Research Program (CIRP) data, one-year attrition data, academic performance data and graduation data.

Student Satisfaction Survey

OIPR conducts the Student Satisfaction Survey in the Spring of each academic year. The survey, originally developed in 1990 by the Office of Student Affairs as a quality of service measure, has been administered by OIPR since 1991. The survey assesses student satisfaction with various facets of the university and includes key sets of questions focusing:

* programs and services,
* university learning and social environment,
* university mission and values,
* education preparation,
* transfer intent,

* general satisfaction,
* attitudes toward coursework, and
* student demographic information.

Survey Development and Sample Selection

The Office involves the university community in the annual survey review process. We have developed our own mail survey instrument instead of using a commercially available survey because it provides the university with more institutional-specific information for quality improvement. The limitation of using a survey developed in-house, however, is that no national comparative data are available. We strive for an instrument that is sufficiently consistent to allow longitudinal tracking of data as well as flexible enough to address important topical concerns as they arise.

All freshmen and samples of undergraduates, graduate students and law students receive this mail survey in the spring of the academic year. The freshman surveys are number coded to allow us to link this data with data from other sources. The initial mailing is followed by colorful reminder cards and additional mailings to ensure a high response rate. In addition, subsets of students are targeted for special reminders, such as freshmen CIRP respondents. A high response rate is especially important when linking multiple datasets, in order to insure a large pool of students who can be linked to data from other sources. For the 1992 Satisfaction Survey, the overall response rate was 47.3%, with 56 5% for freshmen, 34% for undergraduates, 56.5% for graduates and 47.9% for law students. In 1993, the overall response rate improved to 51.8%, with 47.6% for freshmen, 49.6% for undergraduates, 59.5% for graduates and 53.6% for law students.

Long-Range Survey Plan

We developed a long-range survey plan to track students who responded to the student satisfaction survey as freshmen (Sanders and Chan, 1993). This plan allows DePaul to develop a comprehensive set of attitudinal indicators spanning the breadth of the DePaul student experience and includes the following surveys:

1. *CIRP Survey*: surveys freshmen as they enroll in the institution. This survey provides information on pre-college attitudes, college achievement indicators and student demographic information.

2. *Student Satisfaction Survey*: surveys freshmen in the spring term. This survey will provide information on customer satisfaction with the institution's academic and student support services, perceptions of the overall environment of the institution and information related to student retention.

3. *Rising Junior Survey.* This survey, which will be completed when freshmen are in the fall of the junior year, will provide more in-depth information on student perceptions during their educational experience of their academic experiences, such as satisfaction with coursework, as well as student services such as academic advising and career planning.

4. *Graduating Senior Survey*: surveys freshmen in the fall after graduation. This survey will provide a post-graduation perspective on student academic experiences, including academic preparation, satisfaction with the educational experience, and post-graduation plans.

5. *Alumni Survey:* This survey, which will be completed two to five years after graduation, will provide outcome information on graduates in terms of employment or continued education, as well as a post-graduation assessment of the educational experiences.

Major Findings

Retention Models

An institution-specific model of freshman retention was developed drawing on the work of Pascarella and Terenzini (1983), by linking the 1992 Student Satisfaction Survey data with the 1991-92 freshman attrition data. The overall attrition rate for these freshman was 19.7%, up slightly from 18% in 1990-91. This gave us a sample of 540 students with both attitudinal and retention data; 484 students who re-enrolled and 56 who did not re-enroll.

Non-parametric statistics indicated that there were several statistically significant differences between the groups of students who re-enrolled and those who did not. Students who returned to DePaul were generally from in-state, had higher cumulative DePaul GPAs and were more satisfied with their academic experiences, level of preparation provided by DePaul, level of personal growth, and were more satisfied with the Admissions and Orientation processes.[1]

In developing a model of retention, we used logistic regression to assess which variables significantly increased the probability of students staying at DePaul. The analysis indicated that the three most important variables that improved the likelihood of freshman leaving DePaul were out-of-state status, low cumulative freshman grade point averages, and low institutional commitment (low agreement that attending this institution was the right decision).[2] This model correctly classified only 19% of the leavers.

The next year, we created two, more powerful retention models, based on a linked dataset of the CIRP survey, the Student Satisfaction Survey, and academic and enrollment indicators. One model, based on the admissions indicators and the CIRP survey, focused on

pre-matriculation indicators of student success. The other, based on the Student Satisfaction survey and the student's enrollment and academic information, focused on indicators from the collegiate experience. Although the two models provided far more information on student behavior and statistically they explained much more of the variance, they were still limited to explaining attrition and retention and did not provide policy makers guidance to improving services to all students (DePaul University, 1994).

Limitations of the Retention Model

In general, retention models provide institutions with useful information about why students may stay and leave the institution. Our retention model gave us information on key differences between those freshmen who stayed at DePaul and those who left. However, this retention model was limited for several reasons. First, the merged dataset contained data for 484 freshmen who re-enrolled for their sophomore fall and only 54 freshmen who did not re-enroll. This represented only 24% of the total group of students who did not return to DePaul.

Second this assessment did nothing to promote continuous improvement of student services and experiences nor did it focus on the needs of the consumers. The focus of this study was to predict students who would stay or leave DePaul, not to assess the quality of their experiences while at DePaul or whether DePaul met its expectations.

Third, this model of retention did not illuminate variables in the analysis that could be manipulated by the institution. In addition, this study provided little information for policy makers in developing recommendations to improve the student experience.

For these reasons, we shifted our focus from developing a model to predict retention to

developing a model of freshman satisfaction. This model allows for a more powerful analysis of the freshman experience by focusing on students' perceptions of their educational experience and allows us to develop strategies for continuous improvement and to draw more specific policy implications to strengthen the student experience for students who remain at the institution.

Satisfaction Models

In order to respond to new challenges in higher education by addressing the needs and concerns of the consumer, we chose to take this analysis a step further and examine what the important variables are in predicting student satisfaction. We used the 1993 Student Satisfaction Survey data and merged this with the one-year attrition data to provide academic performance information. Our sample was 484 students, 414 who were retained and 19 who left (with missing attrition data for 21 students). This was a freshman response rate of 47.6%.

Using reliability analysis, we constructed 10 indices from the Student Satisfaction Survey (see the following page for a description of the items on each of the indices) using items to which over 75% of the students had responded:

* overall academic satisfaction
* students/social life
* environment
* mission
* teaching/faculty
* general education
* academic support

Table 1

Satisfaction Indices & Reliability

Overall Academic Satisfaction (.84)
Academically challenged
Education preparing for real life
Excellent academic reputation
Satisfied with academic experiences
Satisfied with intellectual development
Confident in right decision to attend DePaul
Good academic atmosphere

Students/Social Life (.78)
Close relationships with other students
Relationships with students satisfying
Good social atmosphere
Social activities - something for everyone
Clubs/organizations that match my interest
Places to relax and meet friends

Environment (.74)
Aware of other cultures
Men and women have equal opportunities
Minority students have opportunities
DePaul encourages me to get involved
I feel welcome at DePaul

Mission (.79)
Catholic presence
University committed to Vincentian ideals
Demonstrated commitment to urban mission
Environment fosters growth
Spirit of respect between cultures
Open to expressing religious views

Academic Support (.80)
Academic advisors are available
Meetings with advisors are helpful
Advisors are sensitive to students' needs

Financial Aid (.84)
Financial aid office kept me informed
Office answered my problems
Tuition counselors helpful

Support Services (.84)
Adequate copiers, of good quality
Reasonable cost of copiers
Enough phones on campus
Quality of food in cafeteria good, reasonably priced
Cafeteria is clean, pleasant
Cafeteria staff is friendly
Satisfied with recycling program
Bookstore hours are convenient
Bookstore staff is helpful
Textbooks are available
Library has needed materials, convenient hours
Library personnel are helpful

Teaching Faculty (.83)
Quality of instruction is excellent
Faculty instructional methods are compatible with my needs
Liberal Studies Program is effective
Easy to reach faculty during office hours
Students/faculty take course evaluations seriously
Students receive personal attention
Developed close relationship with faculty member
Outside of class interaction with faculty are positive
Faculty are generally superior teachers
Faculty are interested in students

General Education Courses (.83)
Gen ed courses are interesting/academically challenging
Gen Ed courses are offered at convenient times
Gen Ed courses are relevant to life/area of study
There is a good selection of course options
Courses are generally satisfying
I mostly enjoy taking these courses

Admissions/Orientation (.90)
Admissions reps/materials gave accurate picture
Admissions was helpful
Visit to DePaul was helpful
Orientation made adjustment easier
Orientation introduced me to values
I would advise a freshman to attend orientation
Programs were helpful
Orientation just the right length

* admissions/orientation
* support services
* financial aid/services.

These 10 indices and academic performance data, which included high school grade point average (GPA), cumulative DePaul GPAs, and composite SAT scores, were used in a regression analysis to determine which of these variables were important in predicting overall satisfaction with DePaul. Our results showed that the key variable in predicting overall satisfaction was overall academic satisfaction, followed by students/social life and environment (standardized Beta weights of .56, .18 and .11 respectively).

We also examined the differences in overall satisfaction for several groups of students. There were no significant differences in overall satisfaction:

* by gender
* by geographic location (in Chicago/suburbs vs. out of the metropolitan area)
* by residence hall status (currently lived in the residence halls vs. off-campus)
* by college.

However, there were differences in the level of overall satisfaction by ethnicity. Hispanic students had significantly lower student satisfaction compared to white students (means of 2.9 compared to 3.3).[3]

Although there were no significant differences in overall satisfaction for these demographic variables with the exception of ethnicity, we noted that different indices were important in predicting overall satisfaction between these groups. (For convenience, the variables and their differing regression weights are listed in the table on the following page.)

Table 2

Regression Analyses

Overall		Adj. R^2 = .59
- Overall Academic Satisfaction		Std Beta=.56
- Students/Social Life		.18
- Environment		.11
By Gender		
Men:	Overall Academic Satisfaction	.67
	Teaching	.22
Women:	Overall Academic Satisfaction	.55
	Students/Social Life	.27
By College		
Commerce:	Overall Academic Satisfaction	.51
	Students/Social Life	.33
	High School GPA	-.13
Liberal Arts:	Overall Academic Satisfaction	.64
	Students/Social Life	.22
By Residence Hall Status		
Yes/In	Overall Academic Satisfaction	.52
	Students/Social Life	.34
No/Not in	Overall Academic Satisfaction	.53
	Environment	.24
	Academic Support	.12
By Ethnicity (2-level)		
Minority	Overall Academic Satisfaction	.55
	Environment	.29
	Cumulative GPA	-.13
Non-Min	Overall Academic Satisfaction	.57
	Students/Social Life	.26
By Geographic Location		
Outside Chgo	Overall Academic Satisfaction	.56
	Students/Social Life	.40
	Support Services	-.21
Chgo/Sub's	Overall Academic Satisfaction	.63
	Students/Social Life	.21

1. The important variables for men were overall academic satisfaction and teaching compared to overall academic satisfaction and students/social life for women.
2. The important variables for students outside the Chicago/suburban area were overall academic satisfaction, students/social life, support services while support services were not important for students in the Chicago/suburban area.
3. For Commerce students, overall academic satisfaction, students/social life and high school GPA were significant, but high school GPA was not significant for Liberal Arts Students.
4. For students who lived in the residence halls, overall academic satisfaction and students/social life were significant predictors of satisfaction, but for students who did not live in the residence halls, overall academic satisfaction was joined with environment and academic support.
5. Due to small sample sizes for different minority groups, we constructed a ethnicity indicator of minority vs. non-minority status. For minority students, academic satisfaction, environment and cumulative GPA were significantly important in predicting overall satisfaction but for non-minority students, overall academic satisfaction and students/social life were significant.

Strengths of the Model

One important feature of focusing on student satisfaction instead of attrition is that we can explore differences between student subgroups, such as satisfaction by gender or ethnicity. Our sample of students who responded to the student satisfaction survey and who did not

return to DePaul for their sophomore year was small. Because of this, our retention modeling using logistic regression (with the bivariate dependent variable 'retention') is limited to the overall freshman sample. However, using the continuous variable 'overall satisfaction' as the dependent variable allows us to use the power of multiple regression to study the attitudes and behaviors of sub-groups within the overall population. Moreover, the focus of institutional efforts will be on improving services to all students, not just the 20% who leave after their first year.

In addition, this analysis indicates that for different sub-groups of the student population, our efforts to improve student satisfaction should focus on different key variables (in addition to the key variable for all groups of overall academic satisfaction). For example, to strengthen minority student satisfaction, efforts need to be focused on environmental factors, such as perceptions of equal opportunities for students of all ethnic backgrounds and gender and developing a sense of belonging, rather than on social factors such developing meaningful relationships with other students and student organizations.

To develop stronger student satisfaction for residence hall students, this analysis suggests that working with the Student Affairs Office to develop programs to enhance positive student relationships and provide meaningful social activities would be more effective, because of these students' close relationships with students in the residence halls, whereas enhancing perceptions of equal opportunities of students and a sense of belonging would be more effective for non-residence students.

Limitations of Satisfaction Models

Although these models of student satisfaction give us insight into how the components

of satisfaction differ among groups of students, there are limitations to this first attempt at modeling satisfaction. First, these are attempts at model-building. The next step in confirming these analyses is to test these models. Our sample sizes for the student subgroups were not large enough to allow us to split the sample to validate our models. In the future, with multiple years of data on which to draw, we will be able to conduct more powerful analyses.

Second, although there were significant differences in the perceived overall satisfaction with DePaul between ethnic groups, because of the small samples of individual ethnic groups it was difficult for us to probe the group differences. As discussed above, a multi-year database will allow us to further explore these differences.

Third, our satisfaction indices were intercorrelated, leading to a problem of multicollinearity in the multiple regression analyses. This multicollinearity in some way distorts the regression findings.

Although there are limitations to these analyses, our models of student satisfaction give us insight into the important components of student satisfaction. As with the retention literature, these models suggest that academic and social perceptions are important to students as the weigh the impact of their educational experiences.

Implications

For many institutions with low attrition rates, quality enhancement programs focused solely at reducing student attrition may be too limited in scope. The emphasis on TQM in many institution has refocused energies on overall student satisfaction, recognizing that continual improvement will reap long-term rewards in academic quality, student recruitment,

and fund-raising and institutional advancement. Institutions need to continue their services to cohorts of students where their may be little significant attrition.

Moreover, given the limited number of students who leave in their first year, it was difficult to break the freshman cohort into smaller groups to study differences in attitudes and behavior. However, using satisfaction modeling, it was statistically possible to examine these smaller cohorts in order to develop more targeted models that can have more wide reaching effects than many retention programs.

For example, DePaul found that the quality of the academic experience had wide-reaching effects among all cohorts of freshmen; however, other measures, such as social interaction and student life were effective with only some groups. Similarly, although there were not significant differences in the satisfaction levels between many of the cohorts of students, based on several demographic variables, the factors affecting student satisfaction were different.

Ultimately, looking at multiple student outcomes, such as retention, graduation and satisfaction, can lead to more powerful institutional improvement programs and can connect retention efforts to a larger process of student development; more satisfied students are not only more likely to be retained and graduate, they are also better candidates for long-term institutional affiliation including support for alumni and university enhancement activities.

Implications for Institutional Research

1. Institutional researchers can use integrated freshman databases to provide more comprehensive outcomes assessment measures. With increasing emphasis on student outcomes assessment, integrated freshman databases provide a more comprehensive

assessment of student outcomes, including satisfaction with the academic and student service environment, and perceptions of integration into the community, as compared to traditional indicators such as freshman retention and attrition rates. Our overall model of student satisfaction indicated that perceptions of overall academic satisfaction was the key variable in predicting student satisfaction, followed by students/social life and environment. Academic performance variables did not enter into the equation.

These outcome measures can be used to support outcomes assessment. Because these measures are more subjective, however, student perceptions may be affected by factors outside the control of the institution. For example, a difficult job market for law students may reduce satisfaction with career planning services. For this and other reasons, it is important for us to validate our models of satisfaction in order to be more confident that our results were not a function of external factors.

2. Integrated data that provides a comprehensive picture of the freshman experience provides decision makers with more useful information for developing successful institutional strategies. For example, a study of freshman satisfaction which includes attitudinal data (survey data) and academic performance data provides decision makers with more useful information than simple satisfaction percentages for developing strategies to improve student satisfaction. Our analyses indicate that the focus of this attention should be on improving perceptions of the overall academic reputation of the institution by continuing to provide a strong academic program and being aggressive in communicating these strengths to students.

3. Institutional researchers can develop longitudinal databases and institution-

specific models of the freshman experience. Multiple years of freshman data can be linked in order to provide a stronger, more powerful dataset to study longitudinal trends in freshman attitudes and behavior. These comprehensive models of the student experiences are more useful to policy makers in developing strategies to improve the student experience. One difficulty to consider in developing longitudinal models is the changes in survey methodology and the survey instrument. For example, we have recently dramatically revised the student satisfaction survey for the next year's analysis. These improvements substantially change the survey, providing a more focused, less redundant study of the student experience. However, making longitudinal comparisons will be problematic. In this study, since we modified our indicator of overall student satisfaction, we were limited to one year of student satisfaction data.

In addition, using theory as a guide, researchers can develop their own institution-specific models of student satisfaction that include the various programs and offerings related to the institution's unique mission. These institution-specific models allow policy makers to develop strategies that directly impact their students' unique educational experiences.

4. This integrated analysis of the freshman experience uses a total quality approach to understand the freshman experience. Integrating attitudinal, behavioral and descriptive data sources builds on the central themes of total quality management (Sherr & Lozier, 1991; Coate 1991), focusing on students as important constituents and identifying problem areas within the university. Our satisfaction modeling recognizes the important of student perceptions of their educational experiences and focusses our attention on improving their experiences, not merely keeping students enrolled at DePaul. We can develop action

strategies related to these important factors to improve satisfaction can be developed and success can be measured via trends in multi-year student satisfaction data.

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Endnotes

1. Chi-Square and Mann-Whitney U tests were significant at the $p<.05$ level.
2. These variables entered into the step-wise logistic regression, and the Exp(B) were: 5.02 for in-state status; 1.0 for cumulative DPU GPA; and .47 for institutional commitment.
3. Differences were significant using one-way ANOVAs $p<.05$, with Scheffe post-hoc tests.